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Jameco Part Number 173833

Agilent Technologies
Innovating the HP Way

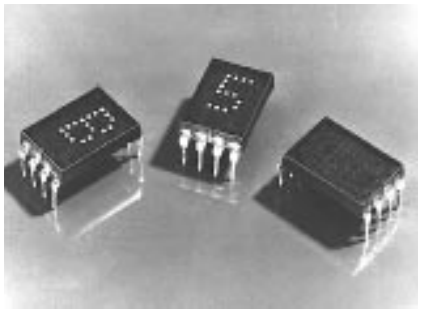
Hexadecimal and Numeric Indicators

Technical Data

5082-7300
5082-7302
5082-7304
5082-7340

Features

- **Numeric 5082-7300/-7302**
  0-9, Test State, Minus Sign, Blank States
  Decimal Point
  7300 Right Hand D.P.
  7302 Left Hand D.P.
- **Hexadecimal 5082-7340**
  0-9, A-F, Base 16 Operation
  Blanking Control, Conserves Power
  No Decimal Point
- **DTL/TTL Compatible**
- **Includes Decoder/Driver with 5-Bit Memory**
  8421 Positive Logic Input
- **4 x 7 Dot Matrix Array**
  Shaped Character, Excellent Readability
- **Standard Dual-in-Line Package Including Contrast Filter**
  15.2 mm x 10.2 mm (0.6 inch x 0.4 inch)
- **Categorized for Luminous Intensity**
  Assures Uniformity of Light Output from Unit to Unit within a Single Category

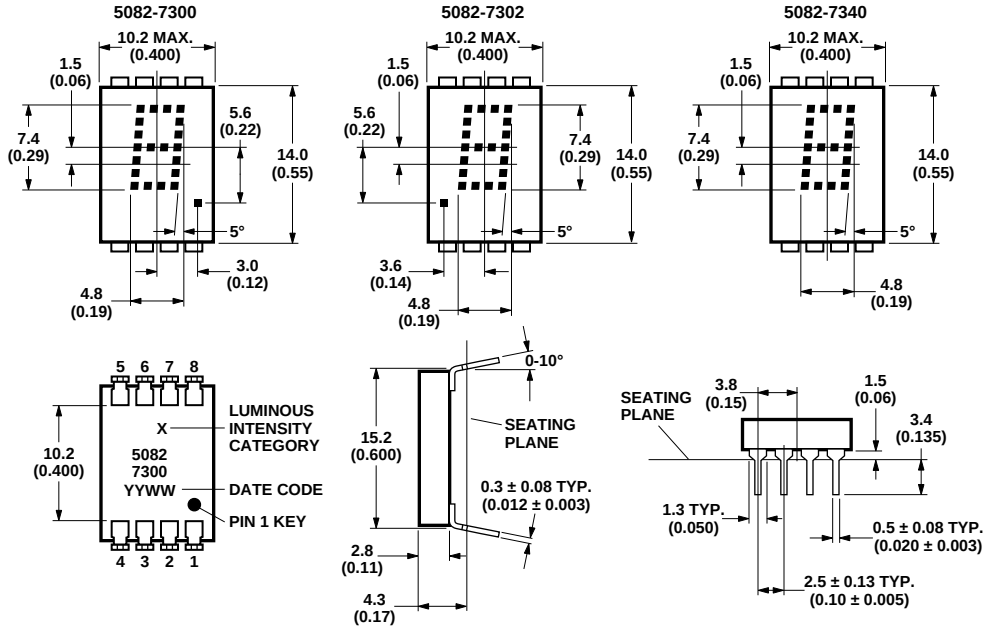


Description

Agilent's 5082-7300 series solid state numeric and hexadecimal indicators with on-board decoder/driver and memory provide 7.4 mm (0.29 inch) displays for reliable, low-cost methods of displaying digital information.

The 5082-7300 numeric indicator decodes positive 8421 BCD logic inputs into characters 0-9, a "–" sign, a test pattern, and four blanks in the invalid BCD states. The unit employs a right-hand decimal point.

Package Dimensions



PIN	FUNCTION	
	5082-7300 and 7302 NUMERIC	5082-7340 HEXADECIMAL
1	INPUT 2	INPUT 2
2	INPUT 4	INPUT 4
3	INPUT 8	INPUT 8
4	DECIMAL POINT	BLANKING CONTROL
5	LATCH ENABLE	LATCH ENABLE
6	GROUND	GROUND
7	V_{CC}	V_{CC}
8	INPUT 1	INPUT 1

NOTES:

1. DIMENSIONS IN MILLIMETERS AND (INCHES).
2. UNLESS OTHERWISE SPECIFIED, THE TOLERANCE ON ALL DIMENSIONS IS ± 0.38 mm (± 0.015 INCH).
3. DIGIT CENTER LINE IS ± 0.25 mm (± 0.01 INCH) FROM PACKAGE CENTER LINE.

The 5082-7302 is the same as the 5082-7300, except that the decimal point is located on the left-hand side of the digit.

The 5082-7340 hexadecimal indicator decodes positive 8421 logic inputs into 16 states, 0-9 and A-F. In place of the decimal point an input is provided for blanking the display (all LEDs off), without losing the contents of the memory. Applications include terminals and computer systems using the base-16 character set.

The 5082-7304 is a (± 1) overrange display including a right-hand decimal point.

Applications

Typical applications include point-of-sale terminals, instrumentation, and computer systems.

Absolute Maximum Ratings

Description	Symbol	Min.	Max.	Unit
Storage Temperature, Ambient	T_S	-40	+100	°C
Operating Temperature, Case	T_C	-20	+85	°C
V_{CC} Pin Potential to Ground Pin	V_{CC}	-0.5	+7.0	V
Voltage Applied to Input Logic Pins and Decimal Point[1]				
Voltage Applied to Latch Enable	V_E	-0.5	+5.5	V
Voltage Applied to Blanking Control[2]	V_B	-0.5	+5.5	V

Notes:
1. Decimal point applies only to 7300/7302.
2. Applies only to 7340.

Recommended Operating Conditions

Description	Symbol	Min.	Nom.	Max.	Unit
Supply Voltage	V_{CC}	4.5	5.0	5.5	V
Logic Voltage “0” State	$V_{IN(0)}$	0		0.8	V
Logic Voltage “1” State	$V_{IN(1)}$	2.0		5.25	V
Latch Enable Voltage – Data Being Entered	$V_{E(0)}$	0		0.8	V
Latch Enable Voltage – Data Not Being Entered	$V_{E(1)}$	2.0		5.25	V
Blanking Control Voltage – Display Not Blanked[1]	$V_{B(0)}$	0		0.8	V
Blanking Control Voltage – Display Blanked[1]	$V_{B(1)}$	3.5		5.25	V

Note:
1. Applies only to 7340.

Electrical/Optical Characteristics (T_A = -20°C to +85°C, Unless Otherwise Specified)

Description	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Supply Current	I_{CC}	V_{CC} = 5.5 V		94[1]	170[2]	mA
Power Dissipation	P_T	V_{CC} = 5.5 V		470[1]	935[2]	mW
Luminous Intensity per LED (Digit Average)[3]	I_V	V_{CC} = 5.5 V, T_C = 25°C	32	70		µcd
Minimum Time Data Must Be Presented to Logic Input Prior to Enable Rising	t_{SETUP}	V_{CC} = 5.0 V, $V_{E(0)}$ = 0.4 V $V_{IN(0)}$ = 0.4 V, $V_{E(1)}$ = 2.4 V $V_{IN(1)}$ = 2.4 V, T_C = 25°C		30	50	ns
Minimum Time Data Must Be Held After Enable Rises	t_{HOLD}	V_{CC} = 5.0 V, $V_{E(0)}$ = 0.4 V $V_{IN(0)}$ = 0.4 V, $V_{E(1)}$ = 2.4 V $V_{IN(1)}$ = 2.4 V, T_C = 25°C		30	50	ns
Time Required for 90% Change in Display Luminous Intensity After Change of State of F_B[4]	t_{BLANK}	V_{CC} = 5.0 V, T_C = 25°C			500	ns
Blanking Control Current "0" State[4]	$I_{B(0)}$	V_{CC} = 5.5 V, $V_{B(0)}$ = 0.8 V			200	µA
Blanking Control Current "1" State[4]	$I_{B(1)}$	V_{CC} = 5.5 V, $V_{B(1)}$ = 4.5 V			2.0	mA
Logic and Latch Enable Currents "0" State	$I_{IN(0)}$, $I_{E(0)}$	V_{CC} = 5.5 V V_{IN}, V_E = 0.4 V			-1.6	mA
Logic and Latch Enable Currents "1" State	$I_{IN(1)}$, $I_{E(1)}$	V_{CC} = 5.5 V V_{IN}, V_E = 2.4 V			+250	µA
Peak Wavelength	λ_{PEAK}	T_C = 25°C		655		nm
Spectral Halfwidth	$\Delta\lambda_{1/2}$	T_C = 25°C		30		nm
Weight				0.8		gm

Notes:
1. V_{CC} = 5.0 V with statistical average number of LEDs lit.
2. Worst case condition excluding test state on 5082-7300/-7302.
3. The digits are categorized for luminous intensity such that the variation from digit to digit within a category is not discernible to the eye Intensity categories are designated by a letter located on the reverse side of the package contiguous with the Agilent logo marking.
4. Applies only to -7340.

Truth Table for 5082-7300 Series Devices

Character		Input						Character		Inputs					
5082-7300/7302 Numeric	5082-7340 Hex.	X8	X4	X2	X1	E	B[1]	5082-7300/7302 Numeric	5082-7340 Hex.	X8	X4	X2	X1	E	B[1]
0	0	L	L	L	L	L		Test	A	H	L	H	L	L	L
1	1	L	L	L	H	L	L	Blank	B	H	L	H	H	L	L
2	2	L	L	H	H	L	L	Minus	D	H	H	L	H	L	L
3	3	L	L	H	H	L	L	Minus	D	H	H	L	H	L	L
4	4	L	H	L	L	L	L	Blank	E	H	H	H	L	L	L
5	5	L	H	L	H	L	L	Blank	F	H	H	H	H	L	L
6	6	L	H	H	L	L	L	Hold	Hold	d	d	d	d	H	d
7	7	L	H	H	H	L	L	–	Blank[1]	d	d	d	d	d	H
8	8	H	L	L	L	L	L	Decimal pt. on[2]	–	DP_{IN} = L					
9	9	H	L	L	H	L	L	Decimal pt. off[2]	–	DP_{IN} = H					

Notes:
1. The blanking control input, B, pertains to the 5082-7340 Hexadecimal Indicator only.
2. The decimal point input pertains to the 5082-7300 and -7302 Numeric Indicators only.
3. H = logic '1'; L = logic '0'; d = 'don't care.'

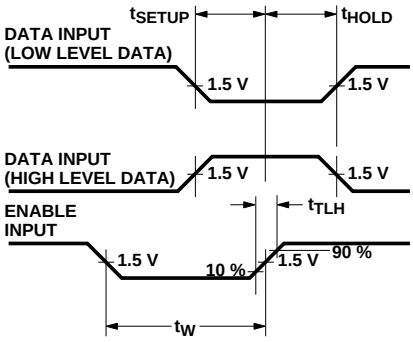


Figure 1. Timing Diagram of 5082-7300 Series Logic.

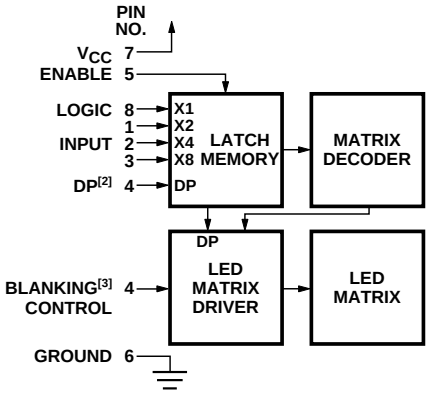


Figure 2. Block Diagram of 5082-7300 Series Logic.

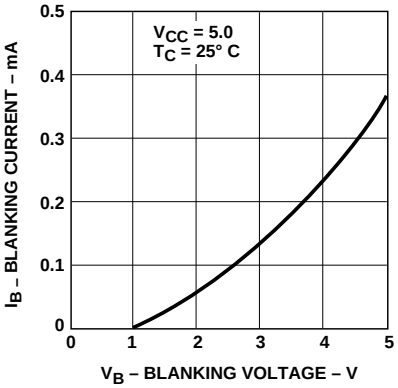


Figure 3. Typical Blanking Control Current vs. Voltage for 5082-7340 Only.

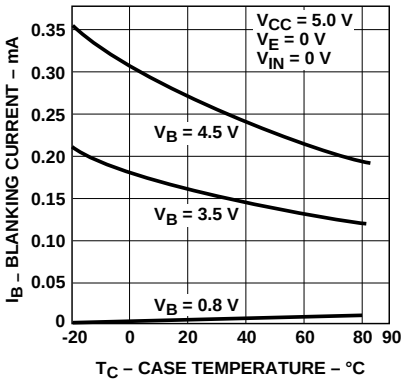


Figure 4. Typical Blanking Control Input Current vs. Ambient Temperature, 5082-7340.

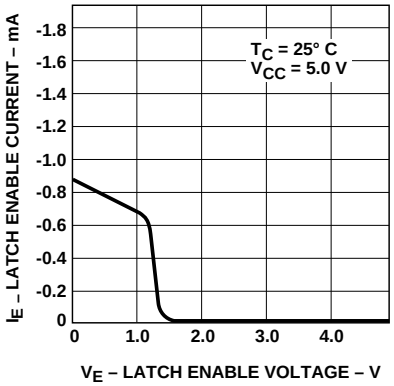


Figure 5. Typical Latch Enable Input Current vs. Voltage for the 5082-7300 Series Devices.

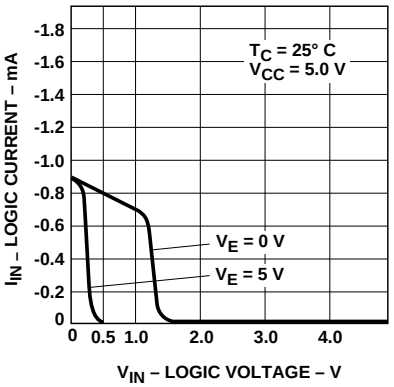


Figure 6. Typical Logic and Decimal Point Input Current vs. Voltage for the 5082-7300 Series Devices. Decimal Point Applies to 5082-7300 and -7302 Only.

TRUTH TABLE					
BCD DATA[1]				5082-7300/7302	5082-7340
X_8	X_4	X_2	X_1		
L	L	L	L	0	0
L	L	L	H	1	1
L	L	H	L	2	2
L	L	H	H	3	3
L	H	L	L	4	4
L	H	L	H	5	5
L	H	H	L	6	6
L	H	H	H	7	7
H	L	L	L	8	8
H	L	L	H	9	9
H	L	H	L	-	A
H	L	H	H	(BLANK)	B
H	H	L	L	(BLANK)	C
H	H	L	H	..	D
H	H	H	L	(BLANK)	E
H	H	H	H	(BLANK)	F
DECIMAL PT.[2]	ON				V_{DP} = L
	OFF				V_{DP} = H
ENABLE[1]	LOAD DATA				V_E = L
	LATCH DATA				V_E = H
BLANKING[3]	DISPLAY-ON				V_B = L
	DISPLAY-OFF				V_B = H

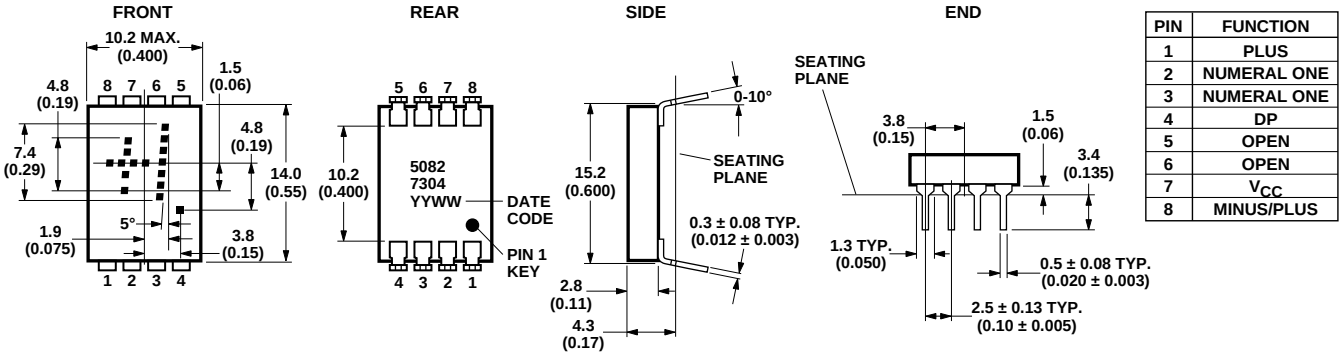
NOTES:

1. H = LOGIC HIGH; L = LOGIC LOW. WITH THE ENABLE INPUT AT LOGIC HIGH, CHANGES IN BCD INPUT LOGIC LEVELS OR D.P. INPUT HAVE NO EFFECT UPON DISPLAY MEMORY, DISPLAYED CHARACTER, OR D.P.
2. THE DECIMAL POINT INPUT, DP, PERTAINS ONLY TO THE 5082-7300 AND 5082-7302 DISPLAYS.
3. THE BLANKING CONTROL INPUT, B, PERTAINS ONLY TO THE 5082-7340 HEXADECIMAL DISPLAY. BLANKING INPUT HAS NO EFFECT UPON DISPLAY MEMORY.

Solid State Over Range Character

For display applications requiring a ± , 1, or decimal point designation, the 5082-7304 over range character is available. This display module comes in the same package as the 5082-7300 series numeric indicator and is completely compatible with it.

Package Dimensions



PIN	FUNCTION
1	PLUS
2	NUMERAL ONE
3	NUMERAL ONE
4	DP
5	OPEN
6	OPEN
7	V_{CC}
8	MINUS/PLUS

Truth Table for 5082-7304

	Pin			
Character	1	2, 3	4	8
+	1	d	d	1
–	0	d	d	1
1	d	1	d	d
Decimal Point	d	d	1	d
Blank	0	0	0	0

Notes:
L: Line switching transistor in Figure 7 cutoff.
H: Line switching transistor in Figure 7 saturated.
X: 'Don't care.'

Typical Driving Circuit for 5082-7304

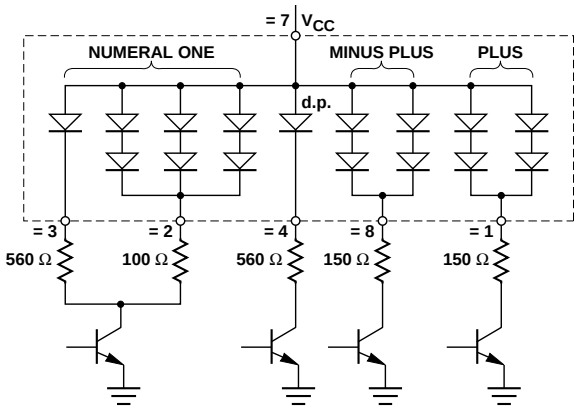


Figure 7.

Absolute Maximum Ratings

Description	Symbol	Min.	Max.	Unit
Storage Temperature, Ambient	T_S	-40	+100	°C
Operating Temperature, Case	T_C	-20	+85	°C
Forward Current, Each LED	I_F		10	mA
Reverse Voltage, Each LED	V_R		4	V

Recommended Operating Conditions

Description	Symbol	Min.	Nom.	Max.	Unit
LED Supply Voltage	V_{CC}	4.5	5.0	5.5	V
Forward Current, Each LED	I_F		5.0	10	mA

Note:
LED current must be externally limited. Refer to Figure 7 for recommended resistor values.

Recommended Operating Conditions

(T_A = -20°C to 70°C, Unless Otherwise Specified)

Description	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Forward Voltage per LED	V_F	I_F = 10 mA		1.6	2.0	V
Power Dissipation	P_T	I_F = 10 mA All Diodes Lit		250	320	mW
Luminous Intensity per LED (Digit Average)	I_V	I_F = 6 mA T_C = 25°C	32	70		µcd
Peak Wavelength	λ_{PEAK}	T_C = 25°C		655		nm
Dominant Wavelength	λ_d	T_C = 25°C		30		nm
Weight				0.8		gm

For further information concerning electrical and mechanical implementation of the 5082-7300 series devices, please refer to Application Note 934.

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Data subject to change.
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Obsoletes 5963-7396E (12/95)
5963-7396E (11/99)